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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,497	02/05/2001	Hirohiko Murakami	101136-00029	8465

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EXAMINER
WILLIAMS, JOSEPH L

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 12/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/775,497	MURAKAMI ET AL.	
	Examiner	Art Unit	
	Joseph L. Williams	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *7,8,10 and 11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-6 and 9 in the Paper filed on is acknowledged.

Claims 7, 8, 10, and 11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in the Paper filed on.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al. (US 6,471,936 B1).

Regarding claim 1, Chen ('936) teaches in figures 1D and 2D and in column 4, line 25-67 (note: there are no figure numbers in the reference) a graphite nanofiber having a cylindrical structure in which graphene sheets each having an ice-cream cone-like shape whose tip is cut off are put in layers through catalytic particles (see decomposition of column 4, lines 39-42); or a structure in which small pieces of graphene sheets having a shape adapted for a surface shape of a catalytic metal particle are put on top of each other in layers through catalytic metal particles (see decomposition of column 4, lines 39-42).

Regarding claim 2, Chen ('936) teaches the graphite nanofiber having a cylindrical structure has a though hole, which is vacant and has a diameter of 1 to 35 nm.

Regarding claim 3, Chen ('936) teaches the metal particles comprises Fe or Co see decomposition of column 4, lines 39-42).

Regarding claim 4, Chen ('936) teaches the metal particles comprises Fe or Co see decomposition of column 4, lines 39-42).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 6,and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danroc et al. (US 5,828,162), in view of Chen et al. (US 6,471,936), of record.

Regarding claim 5, Danroc ('162) discloses in figures1 and 2 and in column 3, line 66 through column 4, line 65 an electron-emitting source, which comprises a carbon layer (12) deposited on a surface of an electrode substrate (4).

Danroc ('162) does not disclose the carbon layer comprising a graphite nanofiber having a cylindrical structure in which graphene sheets each having an ice-cream cone-like shape whose tip is cut off are put in layers through catalytic particles; or a structure in which small pieces of graphene sheets having a shape adapted for a surface shape of a catalytic metal particle are put on top of each other in layers through catalytic metal particles.

Further regarding claim 5, Chen ('936) teaches in figures 1D and 2D and in column 4, line 25-67 (note: there are no figure numbers in the reference) a graphite nanofiber having a cylindrical structure in which graphene sheets each having an ice-cream cone-like shape whose tip is cut off are put in layers through catalytic particles (see decomposition of column 4, lines 39-42); or a structure in which small pieces of graphene sheets having a shape adapted for a surface shape of a catalytic metal particle are put on top of each other in layers through catalytic metal particles (see decomposition of column 4, lines 39-42), for the purpose of improving the efficiency of the carbon layer.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the graphite nanofiber of Chen in the carbon layer of Danroc for the purpose of improving the efficiency of the carbon layer.

Regarding 6, Danroc ('162) teaches that the electrode substrate can be comprised of Co (see column 6, line 14-15).

Regarding claim 9, Danroc ('162) teaches a display element, comprising a plurality of transparent conductive films having a desired pattern, an electron-emitting source formed by applying a carbon layer (12) on patterned surface portions of a patterned electrode substrate (4) and a luminous body (24) opposed to the carbon layer, wherein the element is so designed that if selecting the carbon layer and the transparent conductive film and applying an electric voltage thereto, electrons are emitted from the carbon layer so that only a specific portion on the luminous body emits light.

Danroc ('162) does not disclose the carbon layer comprising a graphite nanofiber having a cylindrical structure in which graphene sheets each having an ice-cream cone-like shape whose tip is cut off are put in layers through catalytic particles; or a structure in which small pieces of graphene sheets having a shape adapted for a surface shape of a catalytic metal particle are put on top of each other in layers through catalytic metal particles.

Further regarding claim 9, Chen ('936) teaches in figures 1D and 2D and in column 4, line 25-67 (note: there are no figure numbers in the reference) a graphite nanofiber having a cylindrical structure in which graphene sheets each having an ice-cream cone-like shape whose tip is cut off are put in layers through catalytic particles (see decomposition of column 4, lines 39-42); or a structure in which small pieces of graphene sheets having a shape adapted for a surface shape of a catalytic metal particle are put on top of each other in layers through catalytic metal particles (see decomposition of column 4, lines 39-42), for the purpose of improving the efficiency of the carbon layer.

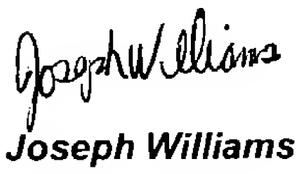
Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the graphite nanofiber of Chen in the carbon layer of Danroc for the purpose of improving the efficiency of the carbon layer.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph L. Williams whose telephone number is (703) 305-1670. The examiner can normally be reached on M-F (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Joseph Williams
Examiner
Art Unit 2879